



# Volunteer Lake Assessment Program Individual Lake Reports

## NORWAY POND, HANCOCK, NH

### MORPHOMETRIC DATA

Watershed Area (Ac.):	4,546	Max. Depth (m):	5.5	Flushing Rate (yr <sup>-1</sup> )	19.2	Year	Trophic class	KNOWN EXOTIC SPECIES
Surface Area (Ac.):	49	Mean Depth (m):	2.5	P Retention Coef:	0.36	1980	MESOTROPHIC	
Shore Length (m):	1,900	Volume (m <sup>3</sup> ):	509,000	Elevation (ft):	825	1995	MESOTROPHIC	

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

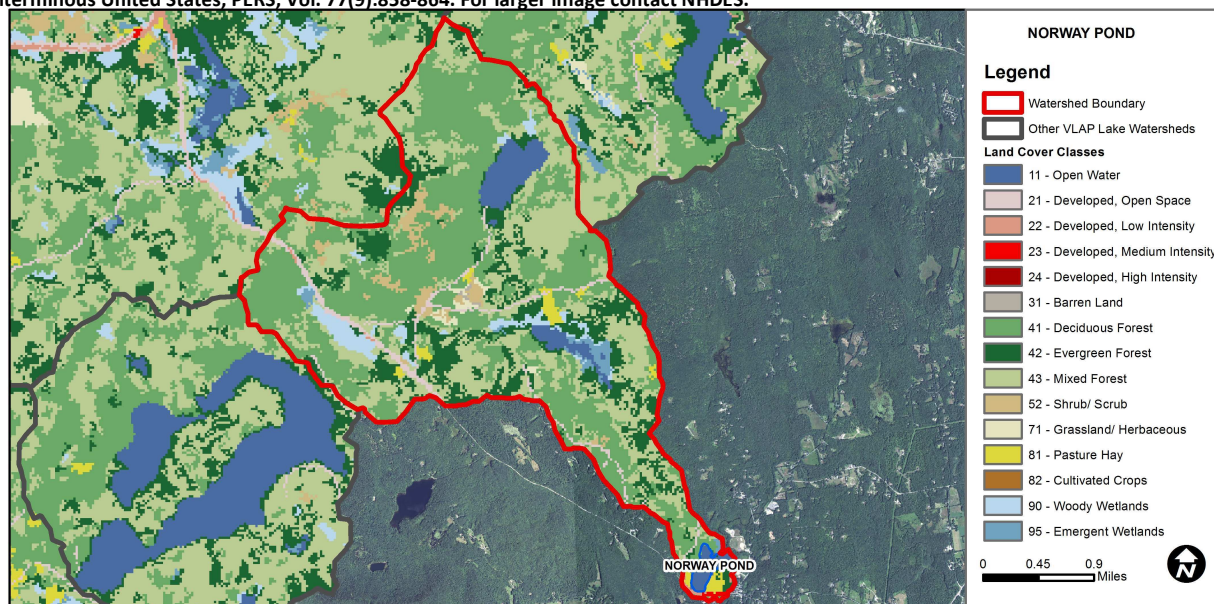
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Cautionary	< 10 samples and 1 exceedance of criteria. More data needed.
	Chlorophyll-a	Good	>=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Good	Geometric means < criteria; however at least 1 exceedance of the single sample criteria occurred.
	Chlorophyll-a	Good	At least 10 samples with 1 sample but < 10% of samples exceeding criteria.

### BEACH PRIMARY CONTACT ASSESSMENT STATUS

NORWAY POND - TOWN BEACH	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.
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### WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	4.45	Barren Land	0.09	Grassland/Herbaceous	0.57
Developed-Open Space	2.64	Deciduous Forest	41.28	Pasture Hay	1.25
Developed-Low Intensity	0.24	Evergreen Forest	14.54	Cultivated Crops	0
Developed-Medium Intensity	0.11	Mixed Forest	28.54	Woody Wetlands	2.65
Developed-High Intensity	0	Shrub-Scrub	2.55	Emergent Wetlands	1.05



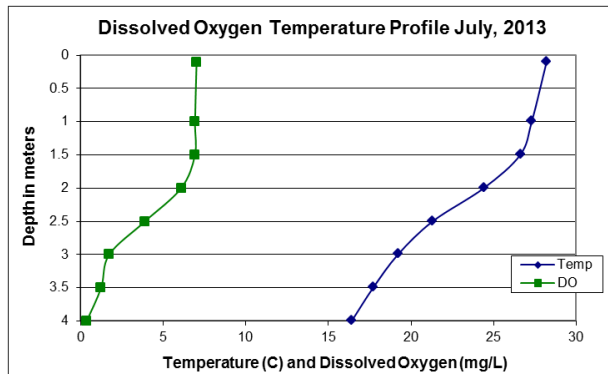
# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

## NORWAY POND, HANCOCK, NH

### 2013 DATA SUMMARY

#### OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphics)

- CHLOROPHYLL-A:** Chlorophyll levels were slightly elevated in June and August and average levels were greater than the state median. Visual inspection of historical data indicates relatively stable chlorophyll since 2006.
- CONDUCTIVITY/CHLORIDE:** Deep spot and tributary conductivity levels were low and less than the state median. Visual inspection of historical data indicates relatively stable epilimnetic conductivity since 2006.
- E. COLI:** Boat launch, Town Beach and Moose Brook E. coli levels were low and much less than state standards for public beaches and surface waters.
- TOTAL PHOSPHORUS:** Epilimnetic phosphorus was slightly elevated in August and September, and hypolimnetic phosphorus was slightly elevated in July and August. Visual inspection of historical data indicates variable epilimnetic phosphorus from year to year. Moose Brook and Outlet phosphorus levels were slightly elevated in July.
- TRANSPARENCY:** Transparency was stable throughout the summer and approximately equal to the state median. Visual inspection of historical data indicates stable transparency since 2006.
- TURBIDITY:** Deep spot and tributary turbidity levels were low on each sampling event.
- pH:** Deep spot and tributary pH levels were less than the desirable range of 6.5 - 8.0 units. Visual inspection of historical data indicates slightly improving epilimnetic pH since 2006.
- DISSOLVED OXYGEN:** Dissolved oxygen levels were depleted in the hypolimnion. As the summer progresses, hypolimnetic dissolved oxygen is depleted by decomposing organisms in bottom sediments. When oxygen levels dip below 1.0 mg/L, phosphorus that is typically bound in sediment may be released into the water column and may be the source of the slightly elevated hypolimnetic phosphorus.
- RECOMMENDED ACTIONS:** The increased frequency and intensity of storm events has the potential to increase stormwater runoff into the pond. Continue to educate lake and watershed residents on way to reduce stormwater runoff from their properties utilizing DES' "Homeowner's Guide to Stormwater Management". Keep up the great work!



**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L  
**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>  
**Conductivity:** 40.0 uS/cm  
**Chloride:** 4 mg/L  
**Total Phosphorus:** 12 ug/L  
**Transparency:** 3.2 m  
**pH:** 6.6

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** < 230 mg/L (chronic)  
**E. coli:** > 88 cts/100 mL – public beach  
**E. coli:** > 406 cts/100 mL – surface waters  
**Turbidity:** > 10 NTU above natural level  
**pH:** 6.5-8.0 (unless naturally occurring)

Station Name	Alk.	Chlor-a	Cond.	E. Coli	Total P	Trans.		Turb.	pH
	mg/l	ug/l	uS/cm	#/100ml	ug/l	NVS	VS	ntu	
Boat Launch				13					
Epilimnion	4.38	5.22	36.9		11	3.26	3.48	0.52	6.41
Hypolimnion			38.2		12			0.81	6.00
Moose Brook			31.4	10	11			0.49	6.34
Outlet			37.2		14			0.65	5.99
Town Beach				2					

#### HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	N/A	Ten consecutive years of data necessary.	Chlorophyll-a	N/A	Ten consecutive years of data necessary.
Conductivity	N/A	Ten consecutive years of data necessary.	Transparency	N/A	Ten consecutive years of data necessary.
			Phosphorus (epilimnion)	N/A	Ten consecutive years of data necessary.

